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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,510	01/20/2006	Stephan Schlitter	13156-00013-US	6639
30678 7590 01/11/2008 CONNOLLY BOVE LODGE & HUTZ LLP 1875 EYE STREET, N.W. SUITE 1100 WASHINGTON, DC 20036			EXAMINER MATOCHIK, THOMAS L	
			ART UNIT	PAPER NUMBER
			1796	
			MAIL DATE	DELIVERY MODE
			01/11/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/540,510	<b>Applicant(s)</b> SCHLITTER ET AL.	
	<b>Examiner</b> Thomas Matochik	<b>Art Unit</b> 1796	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2007.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-13 and 15-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-13 and 15-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application                       |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date <u>10/12/2007</u> . | 6) <input type="checkbox"/> Other: _____  |

## **DETAILED ACTION**

### ***Claim Objections***

In claim 2, the period after the phrase, ...catalyst bed, should be removed.

Appropriate correction is requested.

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. A portion of claim 6 states "*..wherein the-used has a..*" is unclear. For purposes of further examination, the Office has interpreted that the applicant meant to say "*..wherein the catalyst used has a ..*". Correction is requested. It is noted that this appears to be a typo as the word "catalyst" was present in the prior amendment to the claims. If deletion of the term was intended, then applicant should do so in accordance with proper amendment practice.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 10-11 and 15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller (US 4,564,671) in view of Funk et.al (US 6,036,845).

**Regarding claims 1, 10-11 and 15-16:** Mueller teaches a process for preparing tetrahydrofuran (THF) copolymers by polymerizing THF in the presence of a 1,2-alkylene oxide co-monomer (col. 1, lines 67-68 and col. 2, lines 1-3) and an aluminum hydrosilicate catalyst activated by acid treatment (col. 2, lines 61-68) using a continuous process in a fixed bed reactor where the reactor is operated in a circulation mode (col. 2, lines 8-16). The ratio of circulation to feed is <5:1 (col. 4, lines 1-6, @<20% feed rate). Mueller does not teach using a fluidized bed reactor operating in a bottom to top configuration. Funk, however, teaches a fluidized bed reactor for reforming a hydrocarbon feedstock under catalytic conditions (col. 2, lines 37-44). Funk also teaches that the feedstock is introduced to the reactor in an upward fashion col. 7, lines 32-40 and Fig. 2). Further, catalyst can be added (col. 7, lines 56-67) or removed (col. 10, lines 17-28) to and from the reactor without disrupting the process or dismantling the reactor (Fig. 13). Funk also teaches the process whereby the catalyst space velocity values fall between 0.2 and 20 per hr (col. 5, lines 39-43) and the superficial velocity of 1 to 12 m per hr (col. 8, lines 45-47). Mueller and Funk face the same technical difficulty namely, catalyzed, continuous process, reactions. At the time the invention was made, it would have been obvious to a person skilled in the art to use the teachings of Funk concerning a fluidized bed, catalyst rejuvenation reactor in the process of

Mueller to add operational flexibility, provide a steady supply of fresh catalyst to the process and improve yields.

Claims 2-9 and 17-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller (US 4,564,671) in view of Funk as applied to claim 1 above and as further evidenced by Tonsil Optimum FF data Sheets (Süd-Chemie AG, Munich, copyright 2007) .

**Regarding claims 2-9 and 17-19:** Mueller teaches the basic claimed process as set forth regarding claim 1 above. Mueller teaches the catalyst to be Tonsil Optimum FF (col. 5, Example 1) having a porosity between 0.23 to 0.32 cm<sup>3</sup>/g (as evidenced by Tonsil Optimum FF Data Sheets). Mueller teaches the catalyst is pressed into moldings having spherical or cylindrical shapes. Spheres having diameters between 3 and 5 mm and cylinder lengths between 2 and 15 mm with diameters between 2 and 6 mm (Col. 3, lines 10-30). These dimensions translate into volumes between 0.014 cm<sup>3</sup> and 0.065 cm<sup>3</sup> for spheres and between 0.006 cm<sup>3</sup> and 0.42 cm<sup>3</sup> for cylinders. The densities of the particles would be implicit in the catalyst moldings. The Office recognizes that all of the claimed effects and physical properties are not positively stated by the reference. Note however, that the reference teaches all of the claimed ingredients, process steps and process conditions and thus, the claimed effects and physical properties would implicitly be achieved by carrying out the disclosed process. If it is the applicants position that this would not be the case: (1) evidence would need to be presented to support applicant's position; and (2) it would be the Office's position that the application

contains inadequate disclosure in that there is no teaching as to how to obtain the claimed properties and effects by carrying out only these steps.

Claims 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mueller (US 4,564,671) In view of Funk as applied to claim 1 above and further in view of Müller (US 5,886,138).

**Regarding claims 12 and 13:** Mueller teaches the basic claimed process as set forth above regarding claim 1. Mueller does not teach the presence of acetic anhydride that produces tetrahydrofuran polymers and copolymers with molecular weights in the range between 250 and 10,000 daltons. However, Müller teaches a process using acetic anhydride (col. 3, lines 32-35) producing polymers with molecular weights between 1000 and 2000 daltons (col. 2, line 62). Mueller and Müller are analogous art namely, processes for the polymerization of tetrahydrofuran. At the time the invention was made, it would have been obvious to a person skilled in the art to combine the teachings of Müller with the process of Mueller because the acetic anhydride provides polymers with narrower molecular weight distributions and low color values.

### ***Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas Matochik whose telephone number is 571-270-3291. The examiner can normally be reached on Monday-Friday 7:30 AM-5:00 PM.

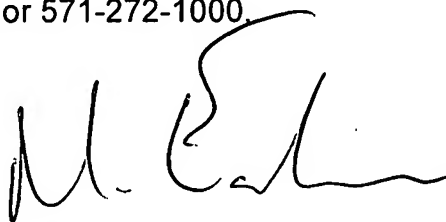
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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Eashoo can be reached on 571-272-1197. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TLM  
1/2/2008



MARK EASHOO, PH.D.  
SUPERVISORY PATENT EXAMINER

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